

## The M0CVO High Gain 4 Element Quad for 2M

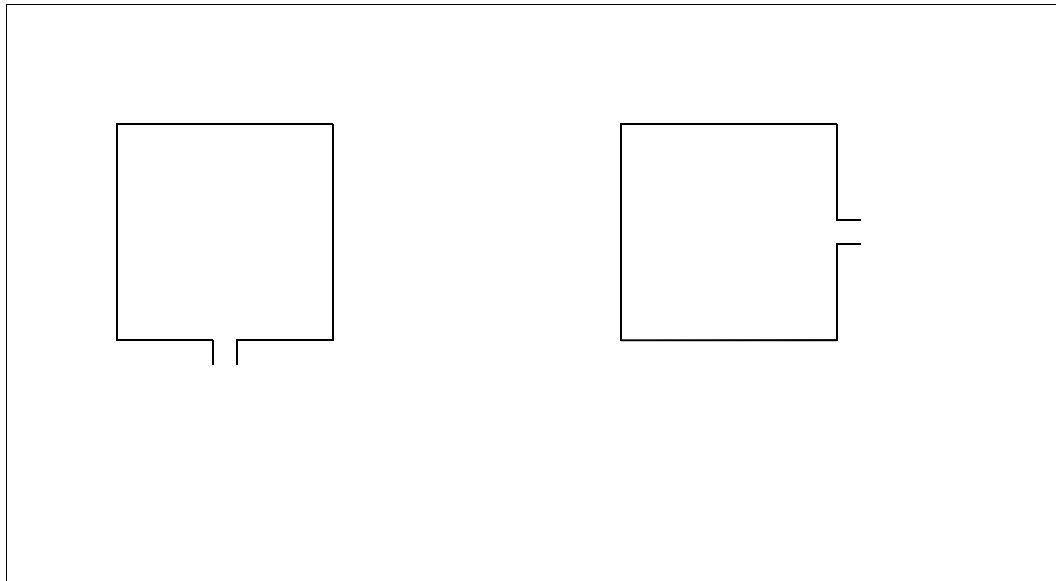
The antenna I am now going to describe is one that I designed some time ago. It is a high gain quad beam for 2M (144 – 146 MHz) band. The forward gain of such an antenna is approximately 11.5 to 12dBd, that's approximately 10.6 to 10.8 times the output power from the rear of your transmitter. For example, say you were operating a 10 Watt txr, the effective radiated power (erp) would be  $10 \times 10.6 = 106$  Watts.

All this power and still a relatively small antenna; the boom is a mere 1 metre in length and may be constructed from 1" (2.5cm) square, weather treated, wood. The elements are constructed from 2.0mm diameter enamelled copper wire (ecw), the dimensions of which are shown in figure 1.

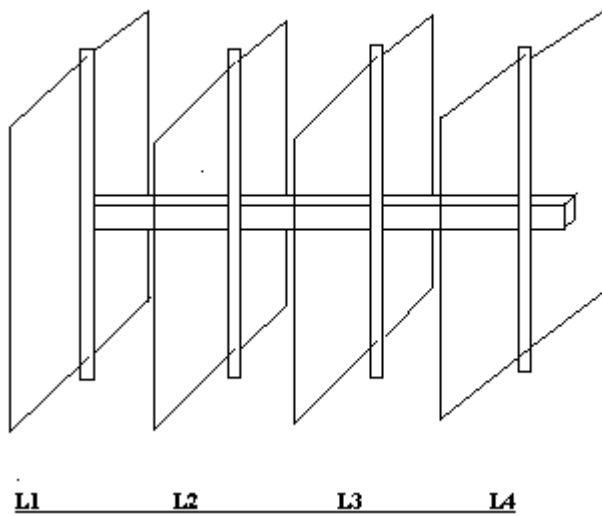
All the dimensions were calculated using the formulae in table 1, which was, admittedly gleaned from "The Amateur Antenna Handbook" by William I Orr, W6SAI, although the beam is of my own design.

Reflector element (per side)	(L1)	=	$78.7/f$ MHz	metres	
Driven element	(per side)	(L2)	=	$76.6/f$ MHz	metres
Director elements (per side)	(L3, L4)	=	$74.3/f$ MHz	metres	
Element spacing (s)		=	$43.3/f$ MHz	metres	

Table 1



For horizontal polarisation feed from bottom for vertical polarisation rotate by 90°



L1 : 0.543m

L2 : 0.528m

L3 : 0.512m

L4 : 0.512m

S : 0.299m

Table 2, These are the lengths per side.

